

Disease: Brucellosis*

***This organism is a potential bioterrorist agent. See “Special Considerations for Bioterrorism” on page 3.** This is a zoonotic disease seen in many herbivores, swine, and dogs. Humans are accidental hosts. Brucellosis is a disease that has been nearly eliminated in the U.S. because of vigorous animal health control measures and milk pasteurization. Brucellosis has been proposed as a biological warfare agent but has not known to have been deployed as such, and it is probably not as likely as other agents.

Synonyms: Undulant fever, Malta fever, Gibraltar fever, Bang’s disease, Mediterranean fever, poll evil, contagious abortion

Clinical Features: There may be sudden or insidious onset of intermittent or irregular fever, chills, profuse night sweats, weakness, profound fatigue, and weight loss. Other common symptoms include insomnia, impotence, constipation, anorexia, headache, arthralgia and general malaise. There may also be CNS effects to produce depression. Lymphadenopathy, splenomegaly, and hepatomegaly are common, but jaundice is rare. Symptoms can last for weeks or months to years and diagnosis can be difficult. In animals, the organism has an affinity for the reproductive organs with abortions or epididymitis and orchitis as presenting signs. Fatalities are rare.

Organism: Brucella spp. are small Gram negative coccobacilli. Humans are susceptible to *B. melitensis*, *B. suis*, *B. abortus* and *B. canis*. Several animals are reservoirs, including cattle, sheep, goats, pigs, bison, elk, deer, caribou, and dogs.

Laboratory Test(s): Bacterial culture of blood, bone marrow, or discharges. KDHEL provides culture testing for Brucella spp.

Treatment: Combination therapy of rifampin (600 mg daily) and doxycycline (200 mg daily) for six weeks is the treatment of choice.

Incubation Period: 5-60 days usually, but can be several months

Mode of Transmission: From contact with tissues of infected animals, drinking unpasteurized infected milk, airborne and occasionally accidental self-inoculation when vaccinating animals. There is no human-to-human transmission.

Period of Communicability: Some animals may remain infectious for months to years.

Susceptibility: Unknown. Most people are considered susceptible.

Occurrence: World wide, especially in Mediterranean countries.

Outbreak criteria: Two or more cases. If no history of exposure can be found, consider the possibility of bioterrorism.

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Surveillance Case Definition: A confirmed case is one with clinically compatible signs and laboratory confirmation.

Clinical criteria: Fever, night sweats, profound fatigue, anorexia, weight loss, headache, and arthralgia.

Laboratory criteria: -Isolation of *Brucella sp* from clinical specimen, **or**
-Four fold rise in Brucella agglutination titer between acute and convalescent serum taken at least two weeks apart, **or**
-*Brucella sp* by immunofluorescence

Case Investigation: Search for sources of infection including a history of exposure to unpasteurized infected milk or cheeses, travel to endemic areas, accidental self-inoculation, high risk occupations (slaughterhouse workers, veterinarians or others who work with infected animal fetuses). Isolation and typing of the organism may indicate the source of infection. There have been animal cases in Kansas and the last human case in Kansas was reported in 19xx. If a source cannot be found, consider bioterrorism.

Methods of Control: The most rational approach for preventing human brucellosis is the control and eradication of the infection in domestic animal reservoirs.

Isolation: None, except standard precautions for any draining lesions

Quarantine: None

Follow-up: Potentially exposed individuals should be followed for symptoms of infection.

Reporting Requirements:

1. Report **immediately** by telephone to 1-877-427-7317 or 785-296-2951.
If this is a possible bioterrorist attack, you should make an immediate telephone report directly to the State Epidemiologist by pager at: 785-249-8903. If there are animals potentially exposed, contact the Kansas Livestock Commissioner immediately at 785-296-2326
2. Complete Kansas Notifiable Disease Form or enter into HAWK.
3. Non-HAWK counties fax form to: 1-877-427-7318, or 785-291-3775
4. Mail form to: Epidemiologic Services Section - KDHE
Landon State Office Building, Room 1051S
900 SW Jackson Street
Topeka, KS 66612-1290

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Reporting Requirements (cont.):

5. An isolate of this organism is not required to be sent to the KDHE Division of Health and Environmental Laboratories (DHEL). However, DHEL is equipped to handle this organism and serology can be performed at CDC through DHEL. To confirm the diagnosis using DHEL, contact them at 785-296-1620. Follow their specific procedures for handling and sending isolates. The mailing address of DHEL is:

Division of Health and Environmental Laboratories
Kansas Department of Health and Environment
Forbes Field, Building #740
Topeka, KS 66620-0001

6. For technical assistance questions, call 785-296-2951 or 1-877-427-7317.

***Special Considerations for Bioterrorism:**

Identification and Reporting:

An announced threat of dissemination, though most likely a hoax, should be taken seriously and KDHE and the local office of the FBI should be contacted immediately.

KDHE:	Routine working hours:	785-296-2951
	24 Hours a day:	1-877-427-7317

FBI 24-hour duty officer:	816-512-8200
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If an outbreak or bioterrorist event is suspected otherwise, contact one of the following numbers (all are staffed 24 hours a day, 365 days a year) immediately in order of priority as shown:

1. Kansas State Epidemiologist: 785-249-8903
2. KDHE Epidemiologist On-Call: 1-877-427-7317
3. CDC Bioterrorism response coordinator hotline: 404-639-0385

Likely Bioterrorist Scenarios:

Brucellosis has been proposed as a biological warfare agent but has not known to have been deployed. A bioterrorist attack may take the form of dissemination of an aerosol among a gathering of a large number of people or by contamination of food or water. Brucellosis is rarely fatal.

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Safety Considerations for Public Health and Other Health Care Professionals:

Because brucellosis is not transmitted person-to-person, public health, other health care, and emergency response personnel are not likely to be at risk in the investigation of an announced threat or the investigation of a scene implicated in an unannounced outbreak.

Event Response/Control Measures:

Whether a bioterrorist event is announced or unannounced, local public health officials should play a central role in the event response and in the determination of appropriate control measures.

Definition of the population-at-risk:

This will be crucial task in such a situation, and will be essential to guide response activities. Public health authorities will play the lead role in this effort, but will consult with law enforcement, emergency response and other professionals in the process. The definition of the population-at-risk may have to be re-evaluated and redefined at various steps in the investigation of, assessment of, and response to a bioterrorist event.

Once a mechanism and scope of delivery have been postulated, symptomatic and asymptomatic potentially exposed individuals can be identified and assessed for treatment or chemoprophylaxis, as well as control measures.

Control measures which should be addressed are:

Decontamination: Rarely necessary, even in announced threats. However, if there is a high level of suspicion that individuals have been contaminated, those potentially contaminated should shower with soap and water immediately. Clothing, shoes and personal articles should be placed in a plastic bag, sealed, and labeled with the person's name and contacting information.

Post-exposure prophylaxis: In most brucellosis threat situations, PEP is not recommended. However, if the level of suspicion is high that an exposure has taken place, potentially exposed individuals may begin antimicrobial prophylaxis if a definitive determination cannot be made within five days.

PEP: Rifampin (600 mg daily) and doxycycline (200 mg daily) for six weeks.

There is no vaccine available for human pre-exposure prophylaxis, and animal vaccine should NEVER be given to humans as several vaccine strains are known to induce the disease in people.

Isolation: None

Quarantine: None

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Event Response/Control Measures (cont.):

Other public health activities:

Line lists: A central responsibility of the LHD staff is to maintain detailed line lists of cases, suspect cases, exposed, and potentially exposed individuals with accurate identifying and locating information as well as appropriate epidemiological information. These lists will be essential for early identification of infection among the exposed.

Pharmaceuticals:

In the event of an outbreak of brucellosis, adequate quantities of appropriate antibiotics will be procured from the CDC National Pharmaceutical Stockpile Program. Procurement, storage, and distribution will be coordinated through the Kansas Department of Health and Environment. Local and state public health officials must play a central role in determining which individuals should have priority for receipt of limited pharmaceuticals.